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The Mesozoic Echinodermata of the United States.[4]—This volume, Bulletin No 97 of the U. S. Geological Survey, is the first of a series of reports on American fossil Echinoderms prepared by Dr. William B. Clark. It comprises a systematic review of the Mesozoic Echinodermata of the U. S. in which descriptions of moderate length are accorded the different species; a complete bibliography of the subject; a table showing the geographical range of the American species; and catalogue of the specific names.

Fifty plates illustrate all the species accompany the report, and, according to the author they show many details of structure not recorded in the descriptive portion.

The Flora of the Dakota Group.[5]—This memoir in quarto form was in preparation by Prof. Lesquereux at the time of his death. It was, however, so nearly completed that it has been published with but slight changes from the original wording. The work is limited to the description of fossil plants represented by a large number of specimens obtained at different localities of the Dakota Group, especially in Kansas, and to the evidence derived from the character of the plants in regard to their origin, their relations, and their places in the history of the vegetation of the world.

The original manuscript embraced descriptions and figures of 350 species of plants, but before it could be published, extensive additional collections were made in Kansas. This new material was identified and described by Prof. Lesquereux, and incorporated in the monograph. It added 110 species to the list, making in all 460 species now known from the Dakota Group.

The drawings which accompany the work are life size and occupy 66 plates.

A short account of the life and work of Prof. Lesquereux is given by the Editor in his preface.

Fritsch's Fauna of the Gaskohle of Bohemia.[6]—The important fauna of the Permian formation receives further illustration from the parts of Dr. Fritsch's great work last issued. The first and second parts now under review are occupied with the Ichthyotomous Elasmobranchii, while the third contains the Acanthodian Elasmobranchs and the Teleostomi of the superorder Actinopterygia.

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[4] Bulletin of the United States Geol. Surv., No. 97. The Mesozoic Echinodermata of the United States. By William Bullock Clark, Washington, 1893.

[5] Monographs of the U. S. Geol. Surv., Vol. XVII. The Flora of the Dakota Group. A Posthumous Work by Leo Lesquereux. Edited by F. H. Knowlton, Washington, 1892.

[6] Fauna der Gaskohle und Kalksteine der Permformations Böhmen's, von Anton Fritsch; Band II, H. 4, 1889 and Band III, Hefts 1 and 2, 1890, 1893. Prague.

The descriptions .of Ichthyotomi cover several species which the author refers to three genera under the names Orthacanthus Agass. Pleuracanthus Agass. and Xenacanthus Goldfuss. The material at Dr Fritsch's disposal is excellent, and he elucidates thoroughly the structure of the fins of all these forms, and is able to identify the spines and teeth of the different species. We are enabled through the kindness of Dr. Fritsch to give a figure of the *Xenacanthus dechenii* from his work. Thanks to his labors the greater part of the skeleton of these remarkable forms is now well known. There remains some doubt whether the forms distinguished as different genera do not belong to a single genus, as the characters pointed out by Dr. Fritsch to be distinctive in the spines and teeth seem to be specific rather than generic, as has been already argued by Mr. Smith Woodward. If the divided terminal rays of the paired fins of *Xenacanthus dechenii* are not dermal, and only absent from the fins of the other forms by accident, as appears to be the case, then Xenacanthus must be regarded as a genus distinct from the other forms. Dr. Fritsch does not adopt the order Ichthyotomi, but his reasons for this course are not clear.

The subclass Teleostomi is adopted by Fritsch, who states that he does not regard the division of "Ganoidei" as well founded. In this he is in accord with views which I have advocated since 1871, in the face of almost universal opposition. I can only say that paleontologic discovery has long since demonstrated the correctness of this position, and its general acceptance cannot be long delayed. Fritsch remarks that Smith Woodward adopts my order of Ichthyotomi with a new definition, as though it were the division proposed by Cope. But he is evidently not aware that I redefined the order, on the basis of the discovery of the fin structure by Sauvage, in a synopsis of the Families of Vertebrata published in the AMERICAN NATURALIST for Oct., 1889, with which the later definition of Woodward in the Catalogue of Fishes of the British Museum (1891) nearly agrees.

The only form of Actinopterygian fish described, is the genus Trissolepis, which is referred to the Chondrostei. It possessed a raptorial dentition of acute teeth, and scales of both ctenoid, cycloid and ganoid forms, the last on the caudal region only. The following figure from Fritsch's work represents this interesting form.

Of Acanthodii, species of the genera Traquairia, Protacanthodes, and Acanthodes are described; the first two genera being new to science.

Machaeracanthus is also referred tothis order. The author accepts the reference of the Acanthodii to the Elasmobranchii.

Dr. Fritsch makes the important discovery of the scales of Ceratodus, which resemble those of the existing species.

The present work is the most important one of modern times in the amount of light which is thrown on the structure of the primitive fishes.—E. D. COPE.

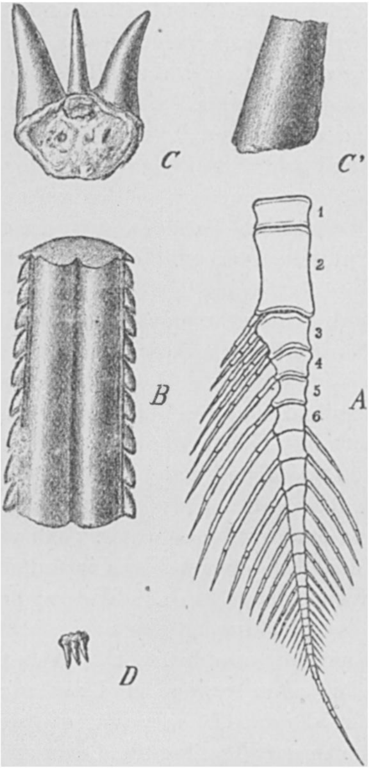
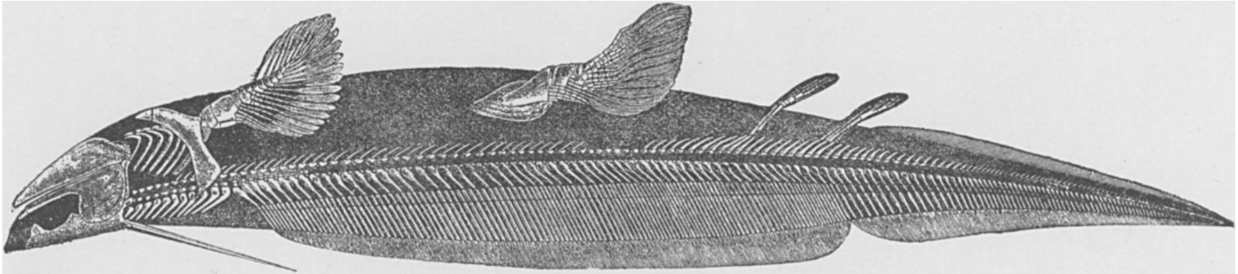


FIG. 1.—*A* Pectoral fin of Xenacanthus (Pleuracanthus). *B* Cephalic spine. *C* Tooth; *C'* Tooth magnified. *D* Gill prickles; all of Xenacanthus (Pleuracanthus).

EXPLANATION OF PLATES.

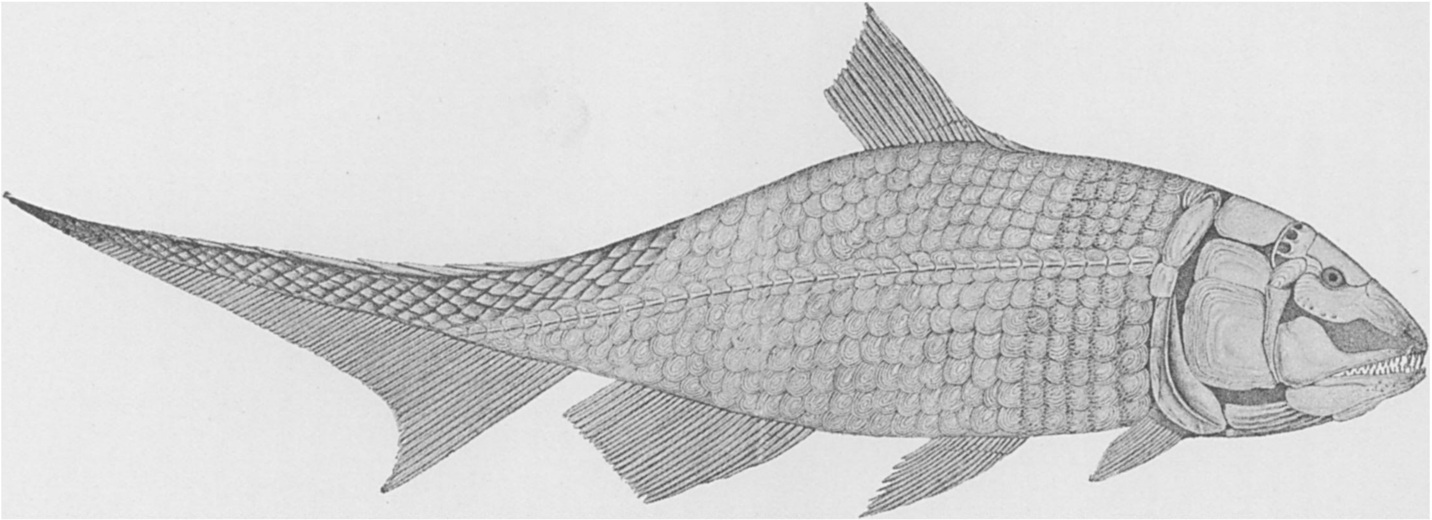
Plate XXIX. *Xenacanthus dechenii* Goldf; from Fritsch.
Plate XXX. *Trissolepis kounoviensis* Fritsch ; from Fritsch.

PLATE XXIX.



Xenacanthus dechenii Goldf.

PLATE XXX.



Trissolepis kounoviensis Fritsch.